



Energy Efficiency Leading Economic Recovery

Making Home Energy Ratings Work for Multi-Family Dwellings

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Multi-Family Market Characteristics

- One-third of Californians live in multi-family
 - One-third qualify as low income
 - Low income: utilities comprise up to 25% of income
 - Average income: utilities comprise about 5% of income
- Traditionally underserved by whole-building or comprehensive programs
 - Multi-family buildings falls between the IOU program cracks
 - Complex nature (hybrid building type, building characteristics, ownership and financing structures)
 - Different (from single-family) program needs, models, level of expertise
 - CPUC direction/stimulus funding for 'residential' whole-building programs primarily interpreted as single-family (homeowners)

Multi-Family Market Opportunities

- Vintage of building stock
 - Over 3.5 million multi-family dwelling units in CA
 - Over half built before energy code
 - Even up to 2005 (loopholes for MF closed) code buildings ripe
- Transaction costs and energy savings
 - Single-family savings $\approx 2,000$ kWh/home
 - Multi-family savings ≈ 650 kWh/dwelling unit - 100 dwelling units at a time = 65,000 kWh per participant
 - Lower administrative and transaction costs/dwelling

Whole-Building Program History

- Whole-building program Designed for Comfort (2002-2008 - funded for this cycle but dropped)
- No multi-family existing building infrastructure
 - Shoe-horned into new construction framework
 - Title 24 software - 2 runs - baseline and 20% improvement
 - Heating, cooling, and water heating only
 - Utilized HERS raters and energy consultants to conduct audits, analysis and verification

Existing Building Focus

- CPUC direction and stimulus funding for residential whole-building programs primarily interpreted as single-family (homeowners)
 - Multi-family either not addressed or in phase 2
 - Some stimulus funding for multi-family programs (San Diego, Bay Area, SMUD, Los Angeles)
 - HERS II developed for single-family
 - Need to develop HERS II for multi-family
 - Home Energy Retrofit Coordinating Committee (HERCC) convened for multi-family
 - Create standards, consistency, and collaboration among multi-family programs
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HERCC for Multi-Family Charter

- HERCC developed HERS II for multi-family
 - Identified gaps
 - Central systems (CDHW, HVAC)
 - Whole building sampling and data collection
 - Aggregated billing data for individually metered buildings
 - High-rise multi-family applicability
 - Renewable energy evaluation
 - Developed solutions
 - Developed audit and verification protocols
 - Minimum qualifications (limited expertise in multifamily)
 - Training for HERS raters for HERS II multi-family
 - Piloting HERS II proxy for multi-family high-rise
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First Multi-Family Training

- HERCC Training - End of 2010
 - Current
 - Residential Title 24 measures
 - Energy modeling
 - Utility data analysis
 - HVAC systems and verification of balancing
 - Additional modules for multi-family
 - Central systems (CDHW, HVAC)
 - Whole building sampling and data collection
 - Renewable energy evaluation
 - Additional training (to be addressed)
 - High-Rise Multi-Family
 - Whole property to include common area
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HERS II for Multi-Family

- Long-overdue tool and training specific to existing multi-family whole building
- Provides a mechanism for:
 - Building owners to assess their properties
 - On a consistent and widely used scale
 - Identify poorly performing buildings
 - Establish energy efficiency investment priorities for both properties and measure loading order
 - Improved ongoing energy management
 - Quality assurance and consistency among building assessment
 - Tenants to compare ratings among apartments and make the best selection according to their budget

HERS II for Multi-Family

- Property sales and rentals
 - Building owners and tenants to promote and compare energy ratings
- Financing
 - Potential tool to identify financeable energy savings
- PV Feasibility
 - Avoids tendency to jump to PV prior to energy efficiency

Intent: HERS II for Multi-Family

- SMUD/San Diego Multi-Family Programs:
 - Whole-building, performance-based with HERS II rater incentives
 - Create jobs by employing the “consultant” model based on certified HERS II raters
 - Coordinate with HERCC Multi-Family for consistency in HERS II implementation
 - Adhere to rigorous audit, analysis and verification protocols consistent with HERS II and HERCC recommendations
 - Build capacity through HERS II training to ensure program quality and sustainability
 - Provide HERS II rater orientation and support throughout the analysis, upgrade, and verification process to ensure the participant has all resources needed to reach completion and develop expertise

HERS II Issues

- Plan B: Interim process if necessary
 - Two building simulation runs representing existing conditions and proposed
 - Side calculation for appliances and lighting
 - Billing data from individually-metered buildings
 - Utilities cannot aggregate billing data by property address due to confidentiality issues
 - ABS not set up for residential
 - Building owner options are to:
 - Collect billing data from a representative sample of units
 - Get authorization from each tenant
 - Collect 12 months of billing data for each tenant
 - Aggregate, extrapolate, and enter into HERS II tool
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Thank you

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